

ZHILIN, I.S.

The codification of Soviet maritime law. Inform.sbor.TSNIIMF  
no.34:31-36 '58. (MIRA 14:3)

1. Sotrudnik-korrespondent TSentral'nogo nauchno-issledovatel'skogo  
instituta morskogo flota, nachal'nik otdela Ingosstrakha SSSR.  
(Maritime law)

DEMIN, G.I.; PLUZHNIKOV, A.I.; CHURAKOV, A.M., inzh.; ZHILIN, I.S., inzh.;  
MAKAROV, D.M., inzh.; LEBEDEV, N.D., inzh.; SHISHLOV, D.D., inzh.;  
IGLIN, V.P., inzh.; YEVLAYEV, E.S., laborant; KISELEV, V.V.,  
laborant; KOTEL'NIKOV, V.V., laborant; TYULENEVA, N.I., laborant

Transfer of a holding furnace to heating by natural gas with  
self-carburization. 'Stal' 23 no.8:755-758 Ag '63. (MIRA 16:9)

1. Moskovskiy institut stali i splavov (for Demin, Pluzhnikov).  
(Furnaces, Heating)

18.3200

78195  
SOV/133-00-3-20/24

AUTHOR: Zhilin, I. S. (Engineer)

TITLE: Practice in Converting Heating Furnaces of Plate Mill  
to Firing by Natural Gas

PERIODICAL: Stal', 1960, Nr 3 pp 278-279 (USSR)

ABSTRACT: The new injector burner was designed and built  
at the "Serp and Molot" plant (zavod "Serp i Molot")  
in 1958. The combination gas-injector burner is  
installed 100-150 mm from tuyere opening (of 200 mm  
diam and 350 mm length) in the wall of the furnace.  
Gas and compressed air are supplied to the burner  
separately, and do not mix inside the burner, making  
the burner explosion proof. Depending on the rate  
of burning, the consumption of compressed air amounts  
to 0.1-0.5 m<sup>3</sup>/m<sup>3</sup> of gas. This burner, having normal  
flameradiation, can be used on any type of furnace and  
boiler, and can replace any mazut (petroleum residue

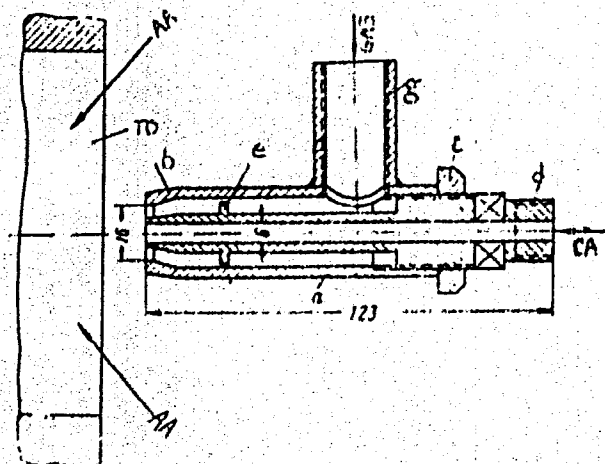
Card 1/3

Practice in Converting Heating Furnaces of  
Plate Mill to Firing by Natural Gas

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used as fuel oil) burner. The schematic diagram of  
combination gas-injector burner is shown in Fig. 1.



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See card 3/3 for caption.

Practice in Converting Heating Furnaces of  
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Fig. 1. The schematic diagram of combination gas  
injector burner. (a) cylindrical tube; (b) nozzle;  
(c) nut; (d) cylindrical air tube; (e) guides; (g)  
gas inlet; (CA) compressed air; (TO) tuyere opening;  
(AA) atmosphere air

There is 1 figure.

ASSOCIATION: Metallurgical Plant "Serp and Molot" (Metallurgicheskii  
zavod "Serp i Molot")

Card 3/3

ZHILIN, I.S., inzh.

Converting heating furnaces of plate rolling mills to operation on natural gas. Stal' 20 no.3:278-279 Mr '60. (MIRA 13:6)

1. Metallurgicheskiy zavod "Serp i molot."  
(Furnaces, Heating) (Gas, Natural)

Obshchaya Avariya I Voprosy Morskogo Prava (Common Accidents and Problems of  
Maritime Law) 2. Izd. Isprav. I Dop. Moskva, izd-vo "Morskoy Transport." 1953.  
87 P. Tables.

SO: Mic  
.035504k

ABRAMYAN, S.L.; AKSEL'ROD, S.M.; ALEKSEYEV, E.A.; AL'TSHER, S.A. [deceased],  
BESPALOV, D.P.; GADZHI-KASIMOV, A.S.; ZHILIN, K.A.; LISTENGARTEN, B.M.;  
ODINOKOV, V.P.; PUTKARADZE, L.A.; SHIMELEVICH, Yu.S.

Neutron-neutron pulse method for investigating wells and results of  
its use in the Balakhan'-Sabunchi-Ramany field. Azerb. neft. khos.  
39 no.11:9-13 N '60. (MIRA 13:12)  
(Apscheron Peninsula—Oil well logging, Radiation)



ZHILIN, K.P.

A book on efficiency of new techniques. Put' i put. khoz. 9  
no.3:38 '65. (MIRA 18:6)

1. Starshiy inzh. sluzhby puti, Dnepropetrovsk.

ZHILIN, K.P. (Dnepropetrovsk)

Current maintenance of tracks with reinforced concrete ties. Put'  
1 put.khoz, 8 no.12:7-8 '54. (MIRA 18:1)

ZHILIN, K.F.

The "D" ballast cleaner on station tracks. Put' 1 put-khoz. 9  
no. 187-8 '65 (MIRA 18:2)

1. Glavnyy inzh. sluzhby puti, Dnepropetrovsk.

DRYAPIK, Ye.P.; ZHILIN, L.P., inzh.; SHERIE, D.P., inzh.

Reorganization of the Kommunar Metallurgical Plant. Stal' 22  
no.10:865-870 0'62. (MIRA 15:10)

1. Glavnyy inzh. Kommunarskogo metallurgicheskogo zavoda (for  
Dryapik).

(Kommunar (Donetsk Province)—Iron and steel plants)

1ST AND 2ND DEGREE		3RD AND 4TH DEGREE	
<p><b>ZHILIN, M.G.</b></p> <p><b>CA</b></p>		<p><b>16</b></p>	
<p><b>PROCESSES AND PROPERTIES MODIFIED</b></p> <p>Acidophilic yeast. M. G. Zhilin, V. L. Davydova and S. S. Desyatnikova. <i>Khimiya. Med. Zhur.</i> 35, No. 5-6, 105-8(1939); <i>Chem. Zentr.</i> 1940, 1, 1704-5. The drink, which is a sour beer, is prepd. as follows: Four l. of boiling water is poured over 2 kg. of ground rye zwieback, the mixt. is cooled to 80° and 200 g. of malt is added. After the mixt. has stood 24 hrs. in the cold, the liquid is siphoned off and, after adding 8% sugar, is poured into sterile flasks where it is sterilized 1 hr. with steam. These flasks are inoculated with cultures of <i>Lactobacillus acidophilus</i> and <i>Tetrala</i> and stored for 38-40 hrs. The drink contains: protein 0.10, sugar 0.36-0.91, alc. 1.35-2 and lactic acid 0.20-0.65%. Clinical tests showed it to have a curative effect on gastric disorders, especially in the presence of dysentery bacilli and <i>Bacterium coli</i>. M. G. M.</p>			
<p><b>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p>			
<p><b>FROM SYNONYM</b></p>		<p><b>FROM SYNONYM</b></p>	
<p><b>SYNONYM</b></p>		<p><b>SYNONYM</b></p>	

ZHILIN, M.G., professor; BELKOREY, M.A.; ANDREYENVA, G.V.

Sanitary-hygienic requirements in field camps. Gig. i san. 21 no.4:  
44-45 Ap '56. (MLRA 9:7)

1. Iz Chkalovskogo meditsinskogo instituta i oblastnoy sanitarno-  
epidemiologicheskoy stantsii.

(AGRICULTURE,

hyg. aspects of field camps (Rus))

DERIBAS, A.A. (Novosibirsk); ZHILIN, N.V. (Novosibirsk); KRASNIKOV, N.D. (Novosibirsk); MARCHENKO, L.L. (Novosibirsk); SEVAST'YANOV, N.V. (Novosibirsk)

Vibrations of a concrete structure on a rock base under the action of explosive loads. PMTF no.2:140-143 JI-Ag 60. (MIRA 14:6)  
(Hydraulic structures--Vibration)

KHRISTOFOROV, V.S.; BIBANOV, V.I.; ZHUKOVETS, A.M.; SANEL'NIKOV, V.S.;  
ZHILIN, N.V.; MARCHENKO, L.L.

Effects of the earthquake of May 4, 1959 in the region of  
Petropavlovsk. Biul. Sov. po seism. no. 11:45-63 '60 (MIRA 14:3)  
(Petropavlovsk region—Earthquakes and building)



ZHILIN, P.A. doktor istoricheskikh nauk, polkovnik, redaktor; ROZANOV, I.G.  
polkovnik, redaktor; LEVINSKAYA, N.Z., tekhnicheskiiy redaktor.

[Most important operations of the Great Patriotic War of 1941-1945;  
a collection of articles] Vashneishie operatsii Velikoi Otechestven-  
noi voiny 1941-1945 gg.; sbornik statei. Moskva, Voen.izd-vo M-va  
obor.SSSR, 1956. 622 p. (MIRA 10:4)  
(World War, 1939-1945--Campaigns)

Name: ZHILIN, Pavel Andreyevich

Dissertation: Kutuzov's skill in military leadership

Degree: Doc Historical Sci

Affiliation: [not indicated]

Defense Date, Place: 30 Dec 55, Council of the Supreme  
Order of Suvorov 1st Degree Military  
Acad imeni Voroshilov

Certification Date: 26 May 56

Source: BMVO 4/57

017  
.R92911

VELIKIY RUSSKIY POLKOVODETS M.I. KUTUZOV. MOSKVA, IZD-VO ZNANIYE,  
1952. 32 P. (VSESOUZNOYE OBSHCHESTVO PO RASPROSTRANEN'IYU POLITICHESKIKH  
I NAUCHNYKH ZNANIY. 1952, SERIYA I, NO. 35)

ZHILIN, P.O.; KASHTANOV, V.S.

The ZIU-5 standardised trolley bus. Biul.tekh.-ekon.inform.  
no.1:74-75 '60. (MIRA 13:5)  
(Trolley buses)

ZHILIN. P. G.

27712. ZHILIN. P. G. Remont kornvaliyksogo kotla. Avtogen. Delo, 1949,  
No. 9, S.25

SO: Letopis' Zhurnal'nykh Statey, Vol. 37, 1949

ZHILIN, P. G.

Engineer

"Repair of a Cornish boiler," Avtogen. Delo, No. 9, 1949.

16

2HILIN, P. G.

\*281. Determination of Dust Fraction of Dry Components in Electrode Production. (In Russian.) P. G. Zhilin and M. E. Glushak. *Avtogennoe Delo* (Welding), July 1947, p. 26-28.

Describes and diagrams the apparatus and the method for its operation. Results of its use on a series of electrode coating components are tabulated.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM ESTABLISHMENT

SECONDARY HELP ONLY Get

RELATIONS

FROM BOWLING

RELATIONS ONLY 101

COMMON ELEMENTS		PROCESSING AND PROPERTIES INDEX	
<p><b>ZHILIN, P. M.</b> <b>Ca</b></p>		<p>Optimum pH values for the preliminary defecation and first saturation. P. M. Zhilin, Z. A. Silina and R. P. Strukova. <i>Trudy Vsesoyuzn. Khim.-Tekh. Inst.</i> 3-4, 10-34 (1930); <i>Khim. Refers. Zhur.</i> 1940, No. 7, 118.—Optimum conditions for pptg. and coagulating proteins, as well as coagulating and peptizing a no. of nonsugars contained in beet juice, were investigated. In the presence of lime and sugar the following optima for the coagulation of proteins were detd.: pH 2-4 in acid media and 11 in alk. media. Increasing the pH value decreased coagulation, i. e., a peptizing effect of sugar and alkali on the pptd. compd. of protein with lime was observed. All liq. compds. of Ca had an optimum pptg. point at pH approx. 11 in the presence of sucrose. At pH less than 11 the pptn. decreased, owing to an insufficient excess of lime and to the hydrolysis of the pptd. substances. W. R. Henn</p>	
<p>ASH. S. A. METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>RIGHTS HOWARD</p>	
<p>GROUPS</p>		<p>RELATIONS</p>	



CHILIN, P. N.

"Certain data on planning and organization of kolkhos villages in the Lithuanian SSR."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

ZHILIN, S.

Shield timbering. Sov.shakht. 10 no.4:22-23 Ap '61.  
(MIRA 14:9)  
(Mine timbering)

KAPUSTIN, K.; PLOTNIKOV, L.; SEREBRYAKOVA, A., inzh.-tekhnolog; ZHILIN, S.,  
inzh.-kulinar; GELADZE, S., master-povar; MCHEDLISHVILI, I.

Letters to the editor. Obshchestv. pit. no.7:36-37 JI '59.  
(MIRA 12:12)

1. Avtozavodskiy trest stolovyykh, g. Gor'kiy (for Serebryakova).
  2. Zheleznodorozhnoye upravleniye rabochego snabzheniya Yuzhno-Ural'skoy zheleznoy dorogi (for Zhilin).
  3. Zaveduyushchiy proizvodstvom stolovoy No.469, Kiyev (for Geladze).
- (Restaurants, lunchrooms, etc.)

ZHILIN, S.

High-speed worker.. Mast.ngl. 9 no.8:11 Ag '60. (MIRA 13:8)  
(Coal miners)

BRONEVOY, V.A.; ZHEZHEL', O.N.; ZHILIN, S.G.

New data on the stratigraphy of Paleogene sediments in the  
northern part of the Aral Sea region. Dokl. AN SSSR 152 no.6:  
1412-1415 0 '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut.  
Predstavleno akademikom V.N. Sukachevym.

ZHILIN, S.I., kapitan meditsinskoy sluzhby

Study of the reaction of increase in phage titer in the  
diagnosis of dysentery. Voен.-med. zhur. no.11:38-40 N '61.  
(MIRA 15:6)

(DYSENTERY)

(BACTERIOPHAGE)

ZHILIN, S.I.

Use of Krotov's apparatus for virological study of air. Lab. delo  
7 no. 11:57-58 N '61. (MIRA 14:10)  
(VIRUS RESEARCH--EQUIPMENT AND SUPPLIES)

ZIMINA, T.A.; KATSNEL'SON, I.A.; ZHILIN, S.I. Prinsipal'noye uchastye:  
KRYUKOVA, T.N., mladshiy nauchnyy sotrudnik; ROMODANOVA, R.I.,  
laborant.

Phytocidal characteristics of onion, garlic, and some other  
plants of Sakhalin. Izv. SO AN SSSR no.4 Ser. biol.-med.nauk  
no.1: 47-52'63. (MIRA 16:8)

1. Sakhalinskiy kompleksnyy nauchno-issledovatel'skiy institut  
Sibirskogo otdeleniya AN SSSR.  
(SAKHALIN-PHYTONCIDES) (SAKHALIN-ALLIUM)



PODLEVSKIY, A.V.; KOGAN, V.Ya.; GORCHAKOVA, Yu.P.; YELIZAROVSKIY, G.I.;  
 RYABOSHAPKA, A.P.; REZNIK, S.R.; GOLUBEV, T.I.; GINTSE, L.A.;  
 RASKIN, M.M.; ZUYENKO, P.G.; KHOMIK, S.R.; KATSNEL'SON, I.A.;  
ZHILIN, S.I.; LYSENKOV, M.N.; ROMANOV, B.G.; SAVENKOV, D.A.;  
 GIL', L.T.; LEVINA, Ye.S.; VOVKI, A.S.; POSLEDOV, F.F.

Annotations. Zhur.mikrobiol., epid.i immun. 32 no.12:120-125 D '61.  
 (MIRA 15:11)

1. Iz Leningradskogo instituta usovershenstvovaniya vrachey imeni Kirova (for Podlevskiy).
2. Iz Ukrainского nauchno-issledovatel'skogo instituta kommunal'noy gigiyeny (for Kogan).
3. Iz Voronezhskogo meditsinskogo instituta (for Gorchakova).
4. Iz Arkhangel'skogo meditsinskogo instituta (for Yelizarovskiy).
5. Iz Kiyevskogo instituta epidemiologii i mikrobiologii (for Ryaboshapka, Reznik).
6. Iz zavoda meditsinskikh preparatov Leningradskogo myasokombinata imeni S.M.Kirova (for Golubev).
7. Iz Gosudarstvennogo kontrol'nogo instituta meditsinskikh biologicheskikh preparatov imeni Taraseviche (for Gintse).
8. Iz Chitinskogo instituta epidemiologii, mikrobiologii i gigiyeny (for Raskin).
9. Iz Ternopol'skogo meditsinskogo instituta (for Zuyenko).
10. Iz Rostovskogo instituta epidemiologii, mikrobiologii i gigiyeny (for Khomik).
11. Iz Chelyabinskogo meditsinskogo instituta (for Gil', Levina, Vovki, Posledov).

(IMMUNOLOGY--ABSTRACTS)

(EPIDEMIOLOGY--ABSTRACTS)

REMARCHUK, V.A.; ZHILIN, S.N.; GOLUBEV, V.A.; PAZUSHCHAN, A.L.;  
ASIMARIN, M.Ya.; CHACHKIS, D.G.

[Standards for the repair of excavators and crushing and sorting equipment; a handbook] Normativy na remont ekskavatorov i drobil'no-sortirovochnogo oborudovaniia; spravochnik. Moskva, Nedra, 1965. 190 p. (MIRA 18:7)

1. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut po dobyche poleznykh iskopayemykh otkrytym sposobom. 2. Laboratoriya mekhanizatsii vspomogatel'nykh protsessov remontnykh i takelazhnykh rabot Nauchno-issledovatel'skogo i proyektno-konstruktorskogo instituta po dobyche poleznykh iskopayemykh otkrytym sposobom.

DOBROVOL'SKIY, N.L.; SHEVCHUK, B.M.; ZHILIN, S.P., redaktor; SAVIN, M.M.,  
redaktor; KOROVENKOVA, Z.A., tekhnicheskii redaktor; PROZOROVSKAYA,  
V.L., tekhnicheskii redaktor

[Organizing the construction of coal preparation plants] Organizatsiia  
stroitel'stva ugleobogatitel'nykh fabrik. Moskva, Ugletekhnizdat, 1954.  
286 p. (MIRA 8:4)

(Coal preparation) (Industrial buildings)

ZHILIN, V., master sporta

With two runways. Kryl.rod. 12 no.8:23 Ag '61. (MIRA 14:8)  
(Essentuki--Gliding and soaring)

ZHILIN, V.A.; GORDIYENKO, B.I.

New clutch-coupling design adapted adapted for the SPS-01 side  
planing machine. Stan.i instr. 27 no.12:36 D '56. (MLRA 10:2)  
(Planing machines)

ZHILIN, V.A.; TRUECHANINOV, A.V.; STROGANOV, F.P.

Drilling of hardened manganese steel G13L. Stan.1 instr. 34 no.3:  
23-24 Mr '63. (MIRA 16:5)

(Drilling and boring)

L 02261-67 FWT(d)/EEC(k)-2/EWP(1) IJP(c) GG/BB  
ACC NR: AT6014776 (N) SOURCE CODE: UR/2752/63/000/051/0055/0068

AUTHOR: Zhilin, V. A.

ORG: none

TITLE: Automatic processing of data received from pulsed radio-navigation systems using electronic digital techniques

SOURCE: Leningrad. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota. Trudy, no. 51, 1963. Vychislitel'naya tekhnika i avtomatizatsiya na morskoy flote (Computer technology and automation in the merchant marine), 55-68

TOPIC TAGS: electronic data processing, data processing equipment, telemetering data, digital computer, radio transmission, navigation system

ABSTRACT: The article deals with the fundamental problems involved in the automatic processing of data obtained from the radio receiver of a pulsed radio-navigation system (automatic search, automatic tracking, measuring). It is shown that data processing equipment based on discrete techniques enjoys a number of advantages over equipment using continuous signal principles. An analysis is made of information losses due to the quantizing of a continuous random function, and a determination is made of the efficiency of the quantizer as a function of the

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L 02261-67

ACC NR: AT6014775

quantizing step. It is found that the use of discrete-action circuitries for the automatic detection of a radio-navigational signal in the presence of noise, automatic tracking, and time interval measurements makes possible the complete elimination of electromechanical components, reducing gears, and other high-precision elements. A digital device is seen to consist essentially of standardized functional components which can be developed in a transistorized micro-module format. The use of discrete-action arrangements for the detection of a signal-noise mixture makes possible the easy realization of the Wald method which provides a gain in operational speed of approximately 2 times over the classical method. At the same time, such a digital system for automatic tracking is significantly simpler in design than the conventional electromechanical system designated for the same purpose, provides practically the same order of accuracy, and gives read-outs of measured time interval values in a binary code which is suitable for direct input into a navigational-type digital computer. Orig. art. has: 9 figures and 12 formulas.

SUB CODE: 09,17/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 003

Card 2/2

pb



TOLKACHEV, L.A., inzh.; KRICHEVSKIY, I.Ye., inzh.; SUDAKOV, V.B., inzh.;  
ZHILIN, V.A., inzh.

Use of a polyethylene film in the prevention of cracking due to  
shrinkage. Energ. stroi. no.1:56-59 '65. (MIRA 18:7)

"APPROVED FOR RELEASE: 07/19/2001

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CIA-RDP86-00513R002064810012-7"

machining the steel with a mineral ceramic cutter, the temperature of the surface layers is 11 to 30% higher than in machining with a tool alloy. The greatest effect on the temperature is observed when machining with a tool alloy.

ZHILIN, V.A.

Use of electronic digital computers in measuring time intervals.  
Inform. sbor. TSNIIMF no.98 Sudovozh. i sviaz' no.23:23-31 '63.  
(MIRA 18:11)

ZHILIN, V.A., kand.tekhn.nauk

Determining the optimum sweep of drills equipped with hard-  
alloy tips in drilling GIZL steel. Vest.mashinostr. 44 no.2:  
62-65 F '64. (MIRA 17:7)

ZHILIN, V.A.; MONCHENKO, V.P.; NOVIKOV, Yu.F.

Using standards for dowels and dowelled joints. Standartizatsiia  
26 no.9:12-17 S '62. (MIRA 15:9)

(Dowels--Standards)

ZHILIN, V.A.

Temperature of the surface layer during the machining of  
steel on lathes. Stan.i instr. 31 no.2:40-41 F '60.

(MIRA 13:5)

(Turning)

ZHILIN, V.A.; STROGANOV, F.P.

Drilling hole in LKh18N9T steel. Stan.1 instr. 33 no.6:37-38  
Je '62. (MIRA 15:7)  
(Drilling and boring)



MITROFANOV, Yu.A.; ZHILIN, V.A.

Automatic device for measuring cellophane moisture. Khim.  
volok. no.3:41-42 '63. (MIRA 16:7)

1. Mogilevskiy zavod.  
(Cellophane) (Moisture—Measurement)

ZHILIN, V.A., kand.tekhn.nauk

Residual stresses in surface layers of steel machined with cermet  
and hard-alloy cutting tools. Vest.mash. 41 no.9:58-62 S '61.  
(MIRA 14:9)

(Metal cutting)

S/121/62/000/006/009/011  
D040/D113

AUTHORS: Zhilin, V.A., and Stroganov, F.P.

TITLE: Drilling holes in 1Kh18N9T steel

PERIODICAL: Stanki i instrument, no. 6, 1962, 37-38

TEXT: Results are presented of an experimental investigation conducted by the Nauchno-issledovatel'skiy institut tekhnologii mashinostroyeniya (Scientific Research Institute of Machinebuilding Technology) in Rostov-na-Donu, and recommendations are given concerning techniques for deep drilling in acidproof 1X18H9T (1Kh18N9T) steel which is prone to strain hardening and causes difficulties in drilling deep holes. It is recommended to use a sulfurated 10% emulsion for drilling fluid; to drill with 12-18 mm diam. drills using 10-14 m/min speed and 0.25-0.35 mm/rev feed. The following geometric drill parameters are recommended: 140° tip point angle; 12° tip clearance angle; 27° helix; 0.4 mm wide margins. Feed has a very high effect because of strain hardening, e.g. at 0.1 mm/rev feed the depth of the strain-hardened metal

Card 1/2

Drilling holes in lKh18N9T steel

S/121/62/000/006/009/011  
D040/D113

layer equals or even exceeds the feed value. Besides, fine chip of lKh18N9T steel easily accumulates in the drill flutes causing jamming and breakage. It is not recommended to split up the chip. Detailed recommendations are illustrated by a drill tip diagram and graphs. There are 9 figures.

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**APPROVED FOR RELEASE: 07/19/2001**

**CIA-RDP86-00513R002064810012-7"**

ABSTRACT: An Author Certificate has been issued for a preparation method involving the treatment of

SHUTOV, G.M.; ZBARSKIY, V.L.; ZHILIN, V.F.; ORLOVA, Ye.Yu.

Nucleophilic substitution by halogen in aromatic nitro compounds.  
Part 2: Catalytic effect of pyridine in reactions of polynitro  
derivatives of benzene and phenol with phosphorus oxychloride.  
Zhur. ob. khim. 35 no.8:1358-1361 Ag '65. (MIRA 18:8)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I.  
Mendeleyeva.



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APPROVED FOR RELEASE: 07/19/2001

CIA-RDP86-00513R002064810012-7"

SHUTOV, G.M.; ZBARSKIY, V.L.; ZHILIN, V.F.; ORLOVA, Ye.Yu.

Nucleophilic substitution of halogen for a nitro group in aromatic nitro compounds. Part 1: Interaction of tetranitro derivatives of benzene with halogen acids and phosphoryl chloride. Zhur.ob.khim. 33 no.10:3210-3211 O '63.

(MIRA 16:11)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleyeva.

L 29294-66 EWP(j)/EWI(m)/I RM/NW/JW/JWD

ACC NR: AP6019318

SOURCE CODE: UR/0079/65/035/008/1358/1361

AUTHOR: Shutov, G. M.; Zbarsky, V. L.; Zhilin, V. F.; Orlova, Yo. Yu.

ORG: Moscow Chemicotechnological Institute im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskyy institut)

TITLE: Nucleophilic substitution of halogen in aromatic nitro compounds. II. Catalytic action of pyridine in reactions of polynitro derivatives of benzene and phenol with phosphorus oxychloride

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1358-1361

TOPIC TAGS: aromatic nitro compound, catalysis, pyridine, chemical reaction

ABSTRACT: The substitution of NO<sub>2</sub> groups with Cl in 1,2,4,6-tetranitrobenzene, 2,3,4,6-tetranitroaniline, 2,3,4,6-tetranitrophenol, 1,2,4-trinitrobenzene, 3,4,5-trinitrotoluene, 3,4,5-trinitrochlorobenzene, 3,4-dinitrochlorobenzene, o-dinitrobenzene, and p-dinitrobenzene was studied. The dinitro derivatives of benzene did not react either with concentrated HCl or with POCl<sub>3</sub> in the presence of pyridine. The trinitro derivatives reacted with POCl<sub>3</sub> under substitution of the activated NO<sub>2</sub> group, but only in the presence of pyridine. Tetranitrobenzene and tetranitroaniline

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UDC: 547.546:+547.564.3

L 29294-00

ACC NR: AP6019318

did not react with  $\text{POCl}_3$  in the absence of pyridine, but reacted with it when pyridine had been added, yielding chloro derivatives (2,4,6-trinitro-3-chloroaniline in the case of tetranitroaniline). Tetranitrophenol reacted with  $\text{POCl}_3$  in the absence of pyridine, yielding 2,4,6-trinitro-3-chlorophenol, but the reaction took place only when the mixture was diluted with water. Apparently, tetranitrophenol reacted with  $\text{HCl}$  formed by hydrolysis of  $\text{POCl}_3$ . Addition of pyridine to tetranitro derivatives required caution, because pyridine was ignited by them. The reaction of styphnic acid (1,3-dihydroxy-2,4,6-benzene) with  $\text{POCl}_3$  in the presence of pyridine hydrochloride resulted in the formation of 2,4,6-trinitro-3-chlorophenol. This indicated that electrophilic substitution must be the initial stage of the reaction of nitrophenols with  $\text{POCl}_3$  (apparently substitution of H in 3-OH with a  $\text{POCl}_2$  group took place.) A reaction of monopyridine styphnate with  $\text{POCl}_3$  in the presence of water did not take place, while in the absence of water 1,3-dichloro-2,4,6-trinitrobenzene formed. Addition of pyridine to a suspension of styphnic acid in  $\text{POCl}_3$  resulted in ignition of the mixture; for this reason monopyridine styphnate was prepared initially and the salt brought into reaction with  $\text{POCl}_3$ . Orig. art. has: 2 figures and 2 formulas. [JPRS]

SUB CODE: 07 / SUBM DATE: 04Jul64 / ORIG REF: 003 / OTH REF: 002  
Card 2/2 CC

L 30402-66 EWP(j)/EWT(m)/ETC(f)/T RM/DS/WW/JW/JWD/WE

ACC NR: AP6008099

SOURCE CODE: UR/0076/66/040/002/0504/0506

AUTHOR: Zhilin, V.F.; Zbarskiy, V.L.; Shutov, G.M.; Orlova, Ye. Yu.

ORG: Moscow Chemical Engineering Institute im. D.I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Methods of studying the kinetics of fast exothermic reactions

SOURCE: Zhurnal fizicheskii khimii, v. 40, no. 2, 1966, 504-506

TOPIC TAGS: chemical reaction kinetics, heat of reaction, exothermic reaction, tertiary amine, nitric acid

ABSTRACT: An attempt was made to work out a technique which would make it possible to minimize the error introduced by the period of mixing of the reagents in exothermic reactions. To this end, use was made of the reaction of hexamethylenetetramine or its dinitrate with anhydrous nitric acid (which yields cyclotrimethylenetrinitroamine). The heat of reaction is 88.0 kcal/mole when hexamethylenetetramine is used, and 41.7 kcal/mole when its dinitrate is employed; to eliminate the overheating (which would raise the reaction temperature to 160C for hexamethylenetetramine), the reagents were first cooled. A method is given for calculating the "equivalent time of mixing"  $\tau_{eq}$ , i.e., the reaction time at a constant temperature  $T_1$  required for the desired concentration of the product  $c_1$

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UDC: 541/.54

L 30402-66

ACC NR: AP6008099

to be formed, and it is shown that this method can indeed be used for reducing the errors introduced by the period of mixing of the components in studies of the kinetics of fast exothermic reactions. Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 07 / SUBM DATE: 01Nov64 / OTH REF: 004

Card 2/2 CC

ZBARSKIY, V.L.; SHUTOV, G.M.; ZHILIN, V.F.; ORLOVA, Ye.Yu.

Some particular features of nitration in the diphenylamine series. Zhur. org. khim. 1 no.7:1237-1239 J1 '65.

(MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva.

ZHILIN, V.G., inzh.

Heat-power plants in the U.S.S.R. during the past 40 years.  
Elek.sta. 28 no.11: 21-31 N '57. (MIRA 10:11)  
(Electric power plants)



AUTHOR: Zhilin, V.G., Deputy Chief Engineer of "Teploelektroproyekt " SOV/25-59-1-8/51

TITLE: Gas Turbines in Power Plants (Gazovaya turbina na elektrostantsii)

PERIODICAL: Nauka i zhizn', 1958, Nr 1, p 14 (USSR)

ABSTRACT: The use of gas turbines in power plants has good prospects. In 1958 the Satskaya Power Plant produced a stationary gas turbine unit with a capacity of 12 kw to be operated by gas obtained from the subground gasification of coal. At present the institut "Teploelektroproyekt" (Institute "Teploelektroproyekt") is developing plans for using test samples of gas turbines with a capacity of 25,000 and 50,000 kw in thermal power stations. These turbines will be put into operation in 1961-1965. There is 1 photo.

Card 1/1

AUTHOR: Zhilin, V.G., Engineer SOV-91-58-9-1/29

TITLE: The Basic Development Trends in Thermo-Power Engineering for the Period 1959-1965 (Osnovnyye napravleniya razvitiya teploenergetiki v period 1959-1965)

PERIODICAL: Energetik, 1958, Nr 9, pp 1-5 (USSR)

ABSTRACT: Electric energy production in the USSR is to be raised from 210 billion kwh in 1957 to 500-515 billion kwh in 1965, with an increase in the rated capacity of electric power plants from 48 to 108 million kw. Several measures for achieving this increase are listed. Plant capacity must be enlarged. Thermal electric plants with a capacity of 600-1,200 Mw and 150 or 200 Mw turbines for steam at 130 atm, 565°C, are at present being constructed. The next step will be the introduction of 300 and 600 Mw turbines for steam at 240 atm, 580°C, with intermediate heating to 565°C. The capacity of condensation power plants will be raised to 2,400 Mw. The adoption of the block lay-out system for power plants, compared to the cross connection system, avoids the necessity of using complicated steam piping and favors the introduction of automation and centralized remote control. These changes necessitate corresponding changes in the design and

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SOV-91-58-9-1/29

The Basic Development Trends in Thermo-Power Engineering for the Period  
1959-1965

lay-out of plant buildings. The turbines should be installed across the machine hall instead of along it and there should be a single combined bunker-deaerator assembly. A table showing fuel consumption versus the kwh generated is plotted for the various capacities of a generator, arranged in this way. This shows that 2,400 Mw power plants with 600 Mw generators need only half the capital investment of plants of the same capacity fitted with 50Mw turbines. In the future, 300 and 600 Mw turbines for steam at 240 atm, 580/565°C, must be developed with a fuel/energy ratio of not more than 1,810 to 1,830 large cals/kwh and fitted with boilers producing steam at 900 to 1,800 ton/h, efficiency 91.5 to 93% with coal and dried-out lignite and 90-91% with anthracites and moist lignites. The production of natural gas in the USSR will rise from 9 billion cu m in 1955 to 150 billion cu m in 1965 and, subsequently, to 280 billion cu m in 1970. A large part of this will be consumed in gas-turbine electric power plants. Compared with power plants using coal fuel, such plants cut capital investment costs by 20 to 28%, personnel by 20 to 35%, electric power consumption inside the plant by 30%, the cost of electricity generated by 7 to 11% and the building time by 8 to 10 months. Plants with 100 to

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SOV-91-58-9-1/29  
The Basic Development Trends in Thermo-Power Engineering for the Period  
1959-1965

200 Mw capacity would be fitted with 25 or 50 Mw gas turbines. From 1959 to 1965, gas turbines with a total capacity of 1,000 Mw are to be installed in 7 electric power plants. To cut building costs and save on materials in short supply, open or semi-open power plants are to be built. Gas turbines are very suitable here. Special electrical equipment for these conditions is already being produced. By 1965, 9 open plants with a total capacity of 4 million kw and 11 semi-open plants with total capacity of 14,175,000 kw are to be constructed. The use of an open or semi-open design cuts building time by 4 to 6 months. Apart from new power plants, the efficiency and output of existing ones can be improved. Power plants with capacities of 50 Mw and over lend themselves to economical modernization. For this purpose 100 Mw and 50 Mw turbines for steam at 300 atm, 650°C or 240 atm, 580°C, could be installed in addition to

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SOV-91-58-9-1/29  
The Basic Development Trends in Thermo-Power Engineering for the Period  
1959-1965

the existing turbines. "Tail" turbines would be converted into counterpressure turbines. Exhaust steam would be used for heating nearby houses and buildings. Studies by the "Teploproyekt" Institute indicate that this type of modernization is a practical and economic proposition. There are 2 schematic diagrams, 2 graphs and 1 table.

1. Electric power production--USSR
2. Steam power plants--USSR

Card 4/4

SOV/25-58-11-16/44

AUTHOR: ~~Zhilin, V.C.~~, Deputy Chief Engineer of the All-Union State Planning Institute "Teploelektroproyekt"

TITLE: 2,400,000 kw (2,400,000 kw )

PERIODICAL: Nauka i zhizn', 1958, Nr 11, pp 36-40 and p 3 of centerfolds (USSR)

ABSTRACT: The Vsesoyuznyy institut "Teploelektroproyekt" (All-Union Institute "Teploelektroproyekt") engaged in research on giant power stations, is considering plans for the construction of a power station with a capacity of 2,400,000 kw in the next few years. The author considers this project in detail, but finally comes to the conclusion that the first condition for such a power station are turbo-generators of 600,000 kw (or 300,000 kw) which are not yet available. Thus this is only a project for the future.  
There are 3 sketches, 1 graph and 2 diagrams.

Card 1/1

~~ZHILIN, V.G., inzh.~~

Problems in planning unit-plan power plants. Elek.sta.29 no.3:32-38  
Mr '58. (MIRA 11:5)  
(Electric power plants)

ZHILIN, V.G., inzh.

~~\_\_\_\_\_~~  
Economic efficiency in using natural gas as power fuel. Elek. sta.  
29 no.7:2-8 J1 '58. (MIRA 11:10)  
(Gas, Natural)



ZHILIN, V.G., inzh.

Standard design of the main structure of a 2400-megawatt steam  
power plant. Energetik8 no.5:1-6 My '60. (MIRA 13:8)  
(Steam power plants)

ZHILIN, V.G.

Giant of thermal power engineering. Nauka i zhizn' 27 no. 4:6-7  
Ap '60. (MIRA 14:5)

(Electric power plants)

ZHILIN, V.G., inzh.; NEKRASOV, A.M., inzh.

Specifications for thermal power plants to be built in the period  
from 1959 to 1965. Elek. sta. 31 no.6:8-24 Je '60. (MIRA 13:7)  
(Electric power plants)

~~ZHILIN, Valentin Gavrilovich~~; UGORTS, I.I., inzh., red.; BELINSKIY, S.Ya., red.; VORONIN, K.P., tekhn. red.

[Design and layout of thermal electric power plants] Komponenty teplovykh elektricheskikh stantsii. Pod red. I.I.Ugortsa. Moskva, Gos. energ.izd-vo, 1961. 414 p. (MIRA 14:11)  
(Steam power plants--Design and construction)

ZHILIN, V.G., inzh.; Prinimali uchastiye: DUBROVSKIY, V.V.;  
KHETAGUROV, N.Ts.; OBOLENSKIY, P.A.; UGORTS, I.I.,  
inzh., red.; SMIRNOV, A.D., red.

[Design of large thermal electric power plants; general  
problems] Proektirovanie teplovykh elektrostantsii bol'-  
shoi moshchnosti; obshchie voprosy. Moskva, Energiia,  
1964. 375 p. (MIRA 18:2)

ZHILIN, V.G., inzh.

"Draft and blast in thermal electric power plants" by L.A.  
Rikhter. Elek. sta. 34 no.8:96 Ag '63. (MIRA 16:11)

ZHILIN, V.G., inzh.

Methods for calculating the structural characteristics of the  
water feed systems of electric power plants. Elek. sta. 34  
no.9:50-56 S '63. (MIRA 16:10)

KARAULOV, N.A., AYVAZIAN, V.G., ZHILIN, V.G.

Problems of optimum peak-load coverage in a complex power system, and modern ways of dealing with them in the conditions existing in the USSR.

Report submitted for the Symposium on Peak Load Coverage Venice, Italy, May 20-23 1963



ZHILIN, V.G., inzh.

Power limit of condensing power plant as dirt accumulates in the  
air reservoir. Elek.sta. 33 no.11:20-27 N '62. (MIRA 15:12)  
(Electric power plants)

IMERITSKIY, Matvey Iosifovich; NIKITIN, Anatoliy Pavlovich; ZHILIN,  
V.G., red.; FRIDKIN, L.M., tekhn. red.

[Handbook on piping and fittings for thermal electric  
power plants] Spravochnik po truboprovodam i armature dlia  
teplovykh elektricheskikh stantsii. Moskva, Gosenergoizdat,  
1962. 287 p. (MIRA 15:9)  
(Electric power plants--Equipment and supplies) (Pipe)

ZHILIN, V.K., otvetstvennyy za vypusk; DOMANUVSKIY, N.A., kandidat tekhnicheskikh nauk, nauchnyy redaktor; MARKAVNYEV, N.I., professor, doktor geograficheskikh nauk, nauchnyy redaktor; KRASNAYA, A.K., tekhnicheskiiy redaktor

[River channel work] Putevye raboty na rekakh. Moskva, Izd-vo "Rechnoi transport," 1956. 89 p. (MIRA 9:8)

1. TSentral'nyy nauchno-issledovatel'skiy institut ekonomiki i ekspluatatsii vodnogo transporta.  
(Rivers) (Hydraulic engineering)

112-3-6541D  
Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3,  
p. 206 (USSR)

AUTHOR: Zhilin, V.N.

TITLE: Investigation of a Cyclic Pulse-Amplitude Telemetering  
System (Issledovaniye amplitudno-impul'snoy tsiklicheskoy  
teleizmeritel'noy sistemy)

ABSTRACT: Bibliographic entry on the author's dissertation for  
the degree of Candidate of Technical Sciences, presented  
to the Leningrad Electrical Engineering Institute  
(Leningr. elektrotekhn. in-t), Leningrad, 1956.

ASSOCIATION: Leningrad Electrical Engineering Institute (Leningr.  
elektrotekhn. in-t)

Card 1/1

8 (2)

SOV/112-58-3-4509

Translation from: Referativnyy zhurnal. Elektrotehnika, 1958, Nr 3, p 159 (USSR)

AUTHOR: Fremke, A. V., Semenov, Ye. I., and Zhilin, V. N.

TITLE: Amplitude-Type Cyclic Telemeter (Amplitudnaya tsiklicheskaya teleizmeritel'naya sistema)

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1957, Nr 29, pp 45-51

ABSTRACT: A multichannel telemeter is described that has time division of channels and amplitude modulation in each of them. Block diagrams of the systems with electro-mechanical and electron primary elements are presented, as well as simplified circuit diagrams of individual units. Basic error of the system (without the primary-element error) is  $\pm 2$  to  $2\frac{1}{2}\%$ .

V. A. K.

Card 1/1

USCOMM-DC-61,057

AUTHOR. Zhilin, V. N.

57-10-27/33

TITLE. On the Theory of Work of the Receiving Apparatus at Repeated  
Telemeasurements (K voprosu o teorii raboty priyemnogo ustroystva  
pri mnogokratnykh tsiklicheskikh telezmereniyakh).

PERIODICAL. Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 10, pp. 2392-2397 (USSR).

ABSTRACT. The problem of the dependence of the pulsating amplitude as function  
of the scheme parameters as well as of the impulse transmission in  
the case of stabilized and transition processes, which up to now has  
not been treated in literature, is investigated. The knowledge of this  
dependence as well as the possibility to determine the time of the  
transition process is very important, as by means of it the selection  
of the parameters of the measuring instrument is carried out. The  
theoretical analysis of the reaction of the valve scheme with a memo-  
ry condenser is carried out according to the method of consecutive  
integration. This makes it possible to solve the problems for an al-  
ready stabilized as well as for a transition state. The characteris-  
tics of this method consist in the fact that the process of the sta-  
bilization of voltage is regarded as a process of the increasing and  
decreasing of the voltage of the memory condenser. The effect of im-

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57-10-27/33

On the Theory of Work of the Receiving Apparatus at Repeated Telemeasurements.

pulses as well as that of the intervals are investigated separately and regularities for their change are found. The equations for the transition state and then, with growing number of frequencies to infinite also that for the stabilized state, are deduced. Practically, the transition process, if the voltage of the condenser differs from the stabilized value only by a certain tolerable value, can be regarded as finished. Recommendations for the selection of a measuring instrument are given. There are 5 illustrations.

SUBMITTED. November 9, 1956.

AVAILABLE. Library of Congress.

Card 2/2

ZHILIN, V.N., kand.tekhn.nauk

Problem concerning the calculation of the elements of a pulse  
shaping and trigger pulse generating network in a cyclic  
amplitude-pulse telemetering system. Energ. sbor. no.2:153-158  
'59.

(MIRA 15:1)

(Telemetering)



ZHILIN, V.M., Cand Tech Sci—(diss) "Study of the amplitude-impulse cyc-  
lic ~~tele~~ telemeasuring system." Len, 1958. 12 pp (Min of Higher Education  
USSR. Len Electri<sup>cal</sup> Engineering Inst in V.I. Ul'yanov (Lenin)), 100 copies  
(KD, 31-58, 103)

-55-

ZHILIN, Ye.L. (Moskva)

Similarity parameters at great hypersonic speeds. Prik. mat. i  
mekh. 26 no.2:387-388 Mr-Apr '62. (MIRA 15:4)  
(Aerodynamics, Hypersonic) (Dimensional analysis)

ZHILIN, Yurii Aleksandrovich; TSYBULEVSKIY, V.L., red.; MULIN, Ye.V.,  
tekhn.red.

[<sup>\*</sup>Figures that astonished the world; <sup>\*</sup>foreign comments on the  
Soviet seven-year plan] Tsifry, petrasaiushchie mir; zarubezhnye  
otkliki na sovetskii semiletnyi plan. Moskva, Izd-vo In-ta  
meshdunarodnykh otnoshenii, 1959. 60 p. (MIRA 12:3)  
(Russia--Economic policy)

BEDNYAKOV, A.A.; ZHILIN, Yu.A.

Methods for barometric leveling during regional gravity operations  
in mountainous regions. Razved. geofiz no.2:108-120 '64. (MIRA 18:5)

ARZUMANYAN, A.A., akademik, red.; RUMYANTSEV, A.M., red.; SHAMBERG, V.M., red.; ZHILIN, Yu.A., red.; ARDAYEV, G.B., red.; KUCHINSKIY, N.N., red.; KATSMAN, G.V., red.

[Problems of modern capitalism and the working class] Problemy sovremennogo kapitalizma i rabochii klass; materialy obmena mneniyami, provedennogo teoreticheskimi i informatsionnymi zhurnalami kommunisticheskikh i rabochikh partii "Problemy mira i sotsializma" i Institutom mirovoi ekonomiki i mezhdunarodnykh otnoshenii Akademii nauk SSSR. Prague, Izd-vo "Mir i sotsializm," 1963. 610 p. (MIRA 16:7)

1. Chlen-korrespondent AN SSSR (for Rumyantsev).  
(Capitalism) (Labor and laboring classes)

ACC NR: AT7003291

SOURCE CODE: UR/3152/66/000/014/0078/0086

AUTHOR: Zhilin, Yu. A.

ORG: None

TITLE: Barometric levelling in the mountains of [Soviet] Central Asia

SOURCE: Razvedochnaya geofizika, no. 14, 1966, 78-86

TOPIC TAGS: geographic expedition, geophysics expedition, geophysics research facility, geodetic survey, geodetic instrument, triangulation, barometer, helicopter, ground survey, gravimetric survey, meteorology, meteorological instrument

ABSTRACT: The experimental-production work of barometric levelling in order to obtain gravimetric points accurate to within  $\pm 5.0$  meters, done in the summer-fall period (June-October) 1964, by the VNIIGeofizik jointly with the Southern Geophysical Expedition of the GPGK of the Tadzhik SSR in the central Tadzhikistan area, is described. An MI-4 helicopter was used in the work. Data on the meteorological factors influencing the accuracy of barometric levelling in the area are listed, and the methods used for triangulation are described. Mean square errors with respect to absolute elevations of fixed points are tabulated. The spatial triangulation method is recommended as simplest and most economical for areas similar to those

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UDC: none

ACC NR: AT7003291

found in central Tadzhikistan, and use of a wide-range microbarometer, the MB-63, too is recommended for improved accuracy in readings. Orig. art. has: 7 formulas, 3 figures and 4 tables.

SUB CODE: 08,01/SUBM DATE: None /ATD PRESS: 5113

Card 2/2

L 25839-66 EWT(1)/FGC GW

ACC NR: AP6006374

(A)

SOURCE CODE: UR/0413/66/000/002/0108/0108

AUTHORS: Zhilin, Yu. A.; Bedryakov, A. A.

ORG: none

TITLE: A means of barometric leveling for mountainous regions. Class 42, No. 178149  
/announced by All-Union Scientific Research Institute of Geophysical Methods of  
Surveying (vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov  
razvedki)/

SOURCE: Izobreteniya, promyshlennyye obraztzy, tovarnyye znaki, no. 2, 1966, 108

TOPIC TAGS: surveying, mapping, geodesy, barometer

ABSTRACT: This Author Certificate presents a means of barometric leveling for mountainous regions. The principle involved is one of measuring atmospheric pressure on a baric basis and at lower stations forming a reference triangle. Large numbers of observation points are defined with respect to the base stations with the use of natural values of barometric coefficients. These coefficients are obtained from the data of a single upper station of the baric basis and from stations of the reference triangle. The stations of the reference triangle should be mutually separated over large distances.

SUB CODE: 08/ SUBM DATE: 11May64

Card 1/1

UDC: 528.024.5



AUTHOR: Zhilin, Yu.L. (Moscow)

40-21-2-9/22

TITLE: Wings of Minimal Resistance (Kryl'ya minimal'nogo soprotivleniya)

PERIODICAL: Prikladnaya Matematika i Mekhanika, 1957, Vol 21, Nr 2, pp 213-220 (USSR)

ABSTRACT: If a body is flown with supersonic velocity and if it disturbs the flow only little, then the forces acting to the body can be expressed by integrals which are expanded over surfaces which surround this body. Taking the two characteristic surfaces of the body as such a surface, then one obtains for the components of the acting force :

$$X = \frac{\rho_{\infty}}{2} \int \int_{S_2} [\beta^2 u^2 + v^2 + w^2 + 2uvf_y + 2uwf_z] dydz$$

$$Y = -U_{\infty} \rho_{\infty} \int \int_{S_2} (v + uf_y) dydz$$

$$Z = -U_{\infty} \rho_{\infty} \int \int_{S_2} (w + uf_z) dydz .$$

Card 1/3

Wings of Minimal Resistance

40-21-2-9/22

Here  $x = f(y, z)$  is the equation of the hinder characteristic surface  $F_2$ ,  $B^2 = f_y^2 + f_z^2$ ,  $S_2$  the projection of  $F_2$  onto  $x = \text{const}$ ,  $u, v, w$  the components of the velocity of disturbance,  $U_\infty$  and  $\rho_\infty$  the supersonic velocity and the density. Furthermore because of the reservation of the mass :

$$U_\infty \cdot \Sigma = - \iint_{S_2} (wf_z + vf_y + B^2 u) dy dz ,$$

where  $\Sigma$  is the difference of the projections of the final and the initial cross section of the body.

These equations are used for the determination of the potential of disturbance velocity  $\varphi(x, y, z)$  at the hinder characteristic surface of a wing of minimal resistance. It is shown that the sought potential satisfies a Laplace equation with mixed boundary value conditions:

$$(1) \quad \varphi_{0yy} + \varphi_{0zz} = 0 , \quad \varphi_0(y, z) = \varphi[f(y, z), y, z]$$

$$\frac{\partial \varphi_0}{\partial n} = q \quad \text{for} \quad y = 0, \quad -\frac{1}{2} l \leq z \leq \frac{1}{2} l ,$$

Card 2/3

Wings of Minimal Resistance

40-21-2-9/22

where  $l$  is the span width and  $q$  the Lagrange's constant depending on the uplift. The author reminds of the close relation of his formulas with the results of R.Jones [Ref 3] .

Furthermore the results of a mechanical solution of (1) are collected in some tables and are discussed and the equation for the potential of disturbance velocity for bodies of minimal resistance with fixed given final cross section is established. There are 3 references, 2 of which are Soviet, and 1 American.

SUBMITTED: August 1, 1956

AVAILABLE: Library of Congress

1. Bodies of revolution--Supersonic flow--Theory

Card 3/3

ZHILIN, Yu. L. (Moscow)

"The Interaction of a Strong Stationary Shock Wave in a Gas an Electromagnetic Field."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.